

NOTE ON THE SLEEPING HABITS OF MALES OF  
MELISSODES ROBUSTIOR COCKERELL

(Hymenoptera: Apoidea)

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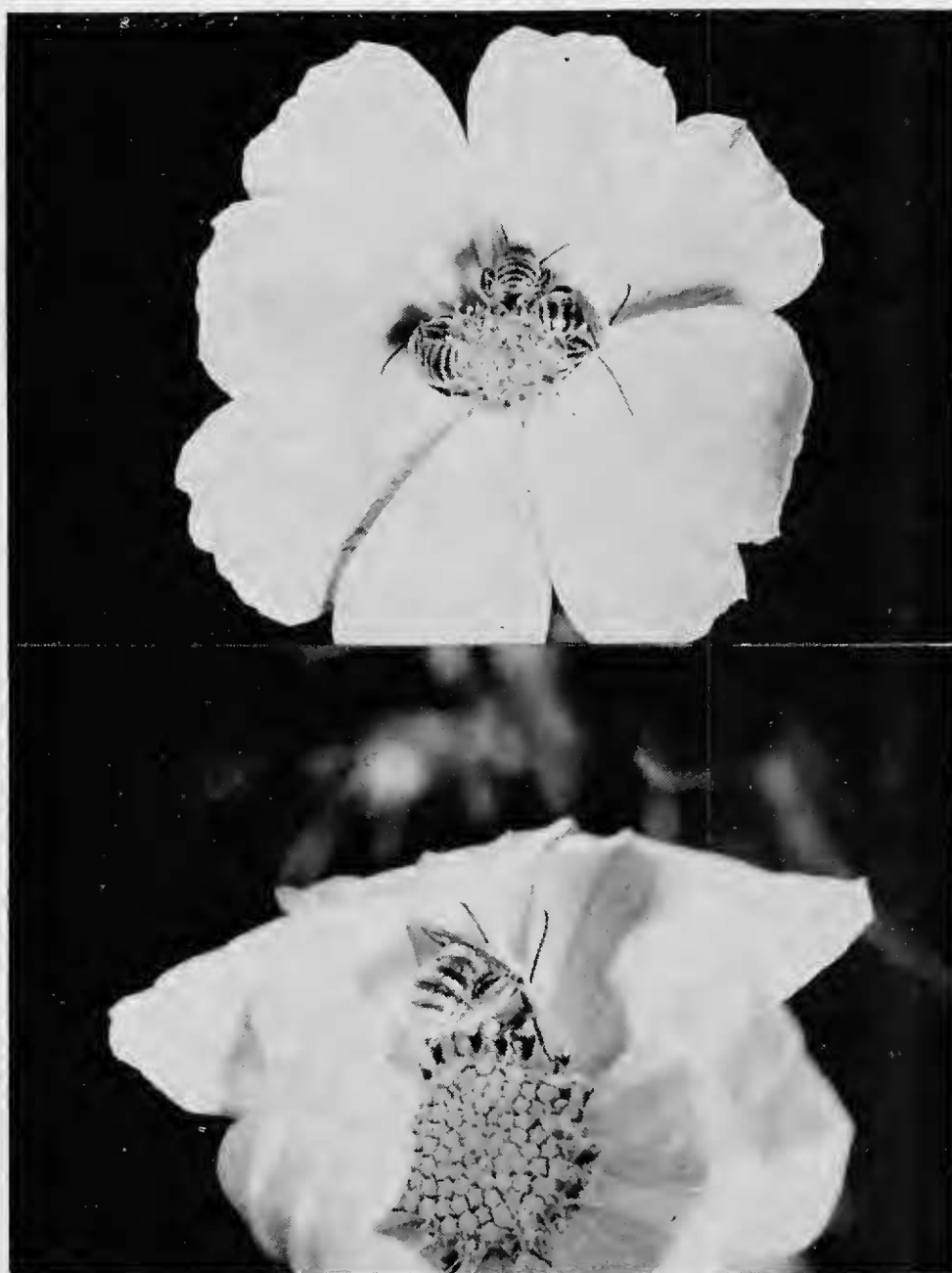
The sleeping habits of solitary bees have been of interest to bee workers for some time. Those of males of *Melissodes* spp. have been reported by various people. Banks (1902) observed *M. bimaculata* (Lepeletier) grasping grass stems and leaves with all six legs as well as the mandibles, with the head oriented up. Cockerell (1915) has described a resting cluster of *M. cressonii* (Dalla Torre) (as *Xenoglossa brevicornis* Cresson) as observed by the Rev. G. Birkmann. These bees grasped the petioles of the leaves of mesquite with their mandibles. Sleeping males of *M. perplexa* Cresson were found on floral spikes of *Verbena stricta* by Mathewson and Daly (1955) in Kansas. These occurred singly and in clusters of up to six, clinging closely to the spikes in horizontal and face-downward positions. The greatest number of bees were found on a "focal clump" of spikes to which many individuals subsequently returned. Evans and Linsley (1960) mention the sleeping habit of *Melissodes* sp. near *confusa* Cresson and *M. paroselae* Cockerell on *Melilotus alba* in Arizona. The first of these curled about the stem, which it grasped with its mandibles, while *M. paroselae* grasped the plant with the mandibles and hung with the legs free. Additional observations were made by Linsley (1961) on the sleeping habits of *M. paroselae* and *M. tristis* Cockerell on dry plants of *Heterotheca* in Arizona.

Although a variety of sleeping sites have been recorded for males of the genus *Melissodes*, none has been reported as sleeping on fresh flowers. However, observations made in Berkeley, California during the latter part of August and September, 1961, indicate that the males of *M. robustior* used only the fresh flowers of the ornamentals, *Cosmos bipinnatus* and *Scabiosa atropurpurea* (det. H. K. Sharsmith and R. Bacigalupi respectively) as sleeping quarters.

During the initial part of the observations, the bees were found to use the flowers of *Scabiosa* both as a nectar source and sleep site. As the season progressed, the number of bees on *Scabiosa* gradually decreased and the *Cosmos* became the primary resting place. The bees slept singly or in clusters of up to three.

The sleeping position of the *Melissodes* on *Cosmos* was usually with the body across the floral disk with the head down and the mandibles grasping an edge of a ray petal or the base of a tubular flower (Fig. 1). The legs were partially spread out and the tarsal claws appeared to be grasping the surface of the floral disk.

Observations on marked males indicated that individuals tended to remain within the same area for both sleeping and diurnal activities. The same flowers were subsequently found to be a pollen source for the females.



#### EXPLANATION OF FIGURE

Fig. 1. Sleeping position of males of *Melissodes robustior* Cockerell on flowers of *Cosmos bipinnatus*.

It is interesting to note that the males showed a decided preference for the flowers of *Cosmos* about the time females were first observed gathering pollen from them. This change in male behavior may indicate that the flowers of the *Cosmos* also serve as a mating site (although no mating was observed) or, as Kullenberg (1956) found in *Macropis*, that the females' scent marked the flowers which they visited. Activity of both sexes of *Melissodes* had greatly diminished by the beginning of October.

BANKS, N. LITERATURE CITED

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BOOK NOTICE

MODERN INSECTICIDES AND WORLD FOOD PRODUCTION. By F. A. Gunther and L. R. Jeppson. New York: John Wiley and Sons, Inc., 440 Fourth Ave.; Great Britain: Chapman and Hall, Ltd. xv + 284 pp., 57 pls. October 7, 1960. \$8.50.

"This book was not written for specialists in the fields of economic entomology and the chemistry of insecticides. Rather it is intended to provide a general but reasonably comprehensive insight into the why's and wherefore's of the modern insecticides and acaricides, problems of their use, and problems from their use . . . The modern pesticides at the moment are essential to man's existence. The encouragement of interest, tolerance, and understanding of the situation is the objective of this book." (preface). The text is up to date; many of the illustrations are striking or spectacular, and most of them new to entomological books. Appendix A (pp. 256-259) is a listing of "Approximate mammalian toxicities of insecticidal and acaricidal compounds mentioned in the text, in terms of LD<sub>50</sub> values."—H.B.L.